Claims

1. A catheter having a heat transfer device at or near its distal end, wherein the heat transfer device is layered or coated onto or into the catheter wall.

2. A catheter as claimed in Claim 1 wherein the heat transfer device is a flexible film having one or more electrical resistor flow paths thereon or therethrough, which film is locatable around the catheter wall.

3. A catheter as claimed in Claim 2 wherein the film is a flexible metal film on which the one or more electrical paths have been etched or otherwise created.

4. A catheter as claimed in Claim 2 wherein the one or more electrical paths are added onto a plastic film backing.

5. A catheter as claimed in Claim 4 wherein the one or more electrical paths are added by a deposition process.

6. A catheter as claimed in Claim 4 wherein the one or electrical paths are added by a coating process.

7. A catheter as claimed in Claim 1 wherein the heat transfer device is disposed directly onto the catheter wall.

8. A catheter as claimed in Claim 7 wherein the heat transfer device is disposed onto the catheter wall by a deposition process.

9. A catheter as claimed in Claim 8 where in the deposition process is a plasma deposition process.

10. A catheter as claimed in Claim 8 wherein the deposition process is a printing process.

11. A catheter as claimed in Claim 10 wherein the printing process uses a conductive ink or a conductive layer, with subsequent etching.

12. A catheter as claimed in any one of Claims 7-11 wherein a temperature sensor material is also disposed onto the catheter wall by a deposition process.

13. A catheter as claimed in any one of the preceding Claims wherein the heat transfer device includes one or more temperature sensors or sensor leads.

14. A catheter as claimed in any one of the preceding Claims wherein one or more insulator layers are located over the resistor structure.

15. A catheter as claimed in Claim 14 wherein one of the insulator layers is parylene C.

16. A catheter as claimed in any one of the preceding Claims wherein the heat transfer device comprises an outer or penultimate outer layer of silver or gold.

17. A catheter as claimed in Claim 1 wherein a length of the outer wall of the catheter is wholly, substantially or partly formed from doped material able to act as a heat transfer device upon application of power therethrough.

18. A catheter as claimed in Claim 17 wherein the doped material is silver or gold.

19. A catheter wherein the catheter wall has one or more metal wires therethrough.

20. A catheter as claimed in Claim 19 wherein the or each wire is copper.

21. A catheter as claimed in Claim 19 or Claim 20 wherein the or each wire is co-extruded within the catheter body.

22. A catheter as claimed in any one of Claims 19-21 wherein the catheter wall includes one or more sets of wires.

23. A catheter as claimed in Claim 22 wherein the catheter body has three sets of wires, each set comprising two wires.

24. A catheter as claimed in any one of Claims 19-24 wherein they or each wire inside the catheter wall is easily exposable.

25. A catheter as claimed in any one of Claims 1-18 in combination with a catheter as claimed in any one of Claims 19-24.

26. A catheter as claimed in any one of the above Claims of size 3-5F.

27. A catheter as claimed in any one of the preceding Claims having a single distal lumen.

28. A catheter as claimed in Claim 27 wherein the lumen has a diameter of approximately 0.5-07 mm.